

# AMERICAN VETERINARY REVIEW,

DECEMBER, 1887.

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## EDITORIAL.

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**AMERICAN VETERINARY REVIEW PRIZE.**—Conditions to fulfill—a committee of five to be selected—first offered with that offered by the United States Veterinary Medical Association, it is now offered individually—no connection with any other—the selection of the judges will be made with care, and their decision final—original researches and *original* papers only will be rewarded—by this action we hope to encourage the work of all, and offer it with no object in view but the advancement of *American veterinary science*. **INFECTIOUS ORIGIN OF TETANUS.**—An old idea revived—it stimulates investigations—Dr. Shakespear, of Philadelphia, one of the first on this continent—Nocard of Alfort experiments—the discovery of Nicolaier in 1884—an anaerobic bacillus—its presence always found at the point of inoculation or in the tissues surrounding—is it the bacillus then or the ptomaines?—those discovered by Brieger—conclusions of Director Nocard—his suggestions—they are good to follow, but will veterinarians listen to them? **TERRITORIAL VETERINARY POSITION IN WYOMING.**—Dr. Hopkins wishes to retire—his place vacant next March—lots of applicants—our suggestions for the selection of his successor.

**AMERICAN VETERINARY REVIEW PRIZE.**—The sum of *One Hundred Dollars* is again offered by the editorial staff of the **AMERICAN VETERINARY REVIEW** for the best *original* paper on a subject pertaining to veterinary science, the special topic being left to the discretion of the author.

Competitors for this premium must forward their contributions for publication to the office of the **REVIEW** (141 West 54th Street, New York City), before the first of April, 1888, each paper being distinguished by a special motto, and accompanied by a sealed envelope, enclosing the name and address of the

author, and endorsed externally with the distinguishing motto, for identification.

The prize will be awarded upon the verdict of a committee of five veterinarians, to be selected from the ranks of the profession at large throughout the United States.

The names of the gentlemen composing the committee of award will be announced in a future number of the REVIEW.

For a number of years it has been the custom of the United States Veterinary Medical Association to award prizes annually to the authors of the best papers upon ordinary topics presented before that body; and not long since, the staff of the REVIEW, after due consideration, concluded, by way of improving the idea, also to offer a prize additional to that of the Association, and which should be disposed of under their immediate auspices. This suggestion was kindly accepted, and for two years past the object intended—viz., that of stimulating study by exciting competition—seemed to be satisfactorily realized.

Certain unforeseen complications, however, have been recently developed, which appear to indicate the propriety of an independent action in this matter on the part of the REVIEW, and the arrangement recently in existence may therefore be considered, for the present, as terminated.

But in view of the benefits which must accrue from the mere process of preparation, and the accompanying efforts of those who are to participate in the proposed competition, through the investigation and study necessarily involved in the work, and to insure the advantages which must inure to the interests of veterinary literature in the United States by the publication of original dissertations which shall be a credit to American veterinary institutions and practitioners, we to-day announce our purpose to continue to present the inducements, though under somewhat altered conditions, which we had before offered to our friends and colleagues, with only the change already indicated. And we are confident in our judgment that in making this change we are adopting a course which cannot but enhance the value of the verdict which should constitute the chief value of the prize to the successful contestants in the coming years.

In the selection of the committee of award we shall use every endeavor to secure the services of gentlemen of qualifications and repute such as will leave no room for question or dissatisfaction as to the soundness and disinterestedness, and consequent value, of any decision they may pronounce.

We trust that our endeavor to encourage the habit of original research and to promote the literary tendencies of our collaborators, will be recognized and seconded in the same spirit in which it has originated, and that the result will be alike gratifying to ourselves, and in no small degree favorable to the cause of American veterinary progress, both in acquirement and in authorship.

**INFECTIOUS ORIGIN OF TETANUS.**—The attention of our readers has been directed, in former numbers of the REVIEW, to a new theory of the origin of tetanus, propounded by certain European writers, who suggest or affirm the parasitic and infectious nature of the disease.

The idea attracted more or less notice by its novelty ; and notwithstanding the discouraging reception encountered by the advanced opinion, and the disparaging remarks of doubters and deniers, investigations were not lacking, and experiments were soon instituted for the purpose of testing the question and elucidating the true status of the new hypothesis.

Among these, as we are informed, is Dr. Shakespear, of the Veterinary Department of the University of Pennsylvania, in Philadelphia, the first on this continent, we believe, who has been engaged in the practical demonstration of the subject, but with what result we are as yet unable to say, his investigations being still in progress and as yet incomplete and unreported.

Director Nocard, of Alfort, however, in a recent number of the *Recueil de Medecine Veterinaire*, reports a series of experiments made by him, which bear strongly in favor of the correctness of the alleged parasitic and infectious nature of lock-jaw.

Numerous experiments have also been made and recorded by Arloing, Tripier, Nocard, Carle and Rattone, Rosenbach, Giordano and Bonome, in which the inoculation of the pus of tetanic patients has been followed by the appearance of the disease—the

same result being attained when horses have been used as subjects of experiment as when the test was made with other animals.

Nicolaier, in 1884, reached the conclusion, after long research, that the tetanic symptoms were due to the action of an "anaerobic bacillus, linear-rod in form, with one extremity presenting, first, a little enlargement which colored very easily, and at a later period a spore which colored very slightly only." But neither Nicolaier nor any of the investigators who followed him, ever succeeded in obtaining pure cultures of that bacillus. And yet, in all the microscopic examinations subsequently made, the same bacillus was found in various quantities in all the structures taken from tetanic patients, viz., in the pus found at the points of inoculation, in the skin, and the infiltrated tissues surrounding it. Director Nocard, in a new series of experiments made with the pus which covered and had dried on wooden clamps used for castration and taken from horses that had died from lock-jaw, has reached the same conclusion, and has found in the subjects which died during his experiments, that the bacillus of Nicolaier was always present, but only remained localized at or near the seat of the wound which formed the starting point of the disease. The nervous structures, the blood of the general circulation, the lymph and splenic pulp, are not generally virulent.

The explanation of the special action of this bacillus, so limited in number, probably resides in the theory, now in dispute, of the general action of microbes which are supposed to secrete toxic products, called *ptomaines*, which are true alkaloids, endowed with excessively powerful toxic properties, and which seem to have been exposed by Brieger, of Berlin, who found four of them in cultures made upon sterilized meat, viz., tetanine, tetanotoxine, spermotoxine, and toxine.

In giving his conclusions from his experiments, Director Nocard says: "They prove once more the infectious nature of tetanus, its incontrollability, and the long resistance of the contagium to all natural causes of its destruction.

"They throw a great light on the pathogeny of the epidemics of lock-jaw following castration. They prove that these epidemics are the involuntary act of the operator who unconsciously carries the germ with him to distribute to his patients.

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"They prove that the veterinarian can in a very great measure avoid them by thorough antiseptic precautions in reference to his person, his clothes and his instruments, all of which may act as vehicles of contagion."

All this can be avoided by such simple antiseptic measures as soaking the instruments in a solution of bichloride of mercury (1 to 1,000), washing the hands of the operator, and cleansing the seat of operation; in short, by the application of all those precautions which at the present time are among the grandest discoveries and noblest evidences of progress in operative surgery, and of which, unfortunately, veterinarians are as yet too slow to avail themselves.

**TERRITORIAL VETERINARY POSITION IN WYOMING.**—The Cheyenne *Sun* contains intelligence of the contemplated retirement of the present Territorial Veterinarian of Wyoming from the position of which he is now the occupant.

Dr. Hopkins, the gentleman who fills that place, announces his intention to vacate his office upon the expiration of the term for which he was last appointed, on the 31st of March next. He has given formal notice to that effect, and from private and direct information we feel authorized to say that in this case Dr. Hopkins, as usual with him, means what he says.

The position and the emoluments which the Doctor relinquishes are tempting, and we have no fear that there will be anything like a dearth of aspirants to the succession among the veterinarians of the land. Indeed, we understand that they are already materializing, and the appointing power need be under no apprehension that the duties of the office will go unfulfilled because our brethren are all too diffident and undemonstrative as to their own merits to suggest their own names in connection with the post and—not to say its pay—its duties. But a point less easily disposed of than the discovery of a willing recipient of the appointment, is the question of competency to "fill the bill." In what proportion do those who are fully qualified for the place probably stand, in point of numbers, to those who are principally influenced by considerations of covetousness, in seeking the office? Dr. Hopkins has made himself almost indispens-

able in Wyoming. His was one of the first and earliest of the veterinarian appointments of the West, and he has exhibited qualities of peculiar fitness for his work such as it is the good fortune of but few to possess. He has worked hard, early and late, and has spared himself in nothing in order to meet his responsibilities and prove his faithfulness, and he has succeeded, to the satisfaction of those who not only appointed, but reappointed him, to his post of honor, and who even emphasized their satisfaction and appreciation of his services by awarding him a salary far above that which any other man in the same position has ever received.

We regret for Wyoming the loss she will sustain in Dr. Hopkins' retirement, and we proffer the suggestion that the best, if not the only way in which the services of a successor who shall adequately meet the exigency of the case may be secured, will be to seek, through a properly organized competitive examination, for an accomplished and fully equipped scientist who will combine the cognate acquirements of an accomplished veterinarian with those of a thorough sanitarian.

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## ORIGINAL ARTICLES.

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### CHICKEN CHOLERA.

By PROF. E. SEMMER, Dorpat, Russia.

Translated specially for the AMERICAN VETERINARY REVIEW from Encyklopädie d. ges. Thierheilkunde.

*Syn.*—German.—Huchnercholera, Huehnerpest. French—Cholera des poules, Maladie Epizootique des Animaux de basse-cour.

Chicken cholera is an epizootic disease, which chiefly affects chickens, spreads periodically over Asia and Europe, creating heavy losses among fowl. The disease, which manifests itself by vomiting, diarrhoea, anorexia, increased thirst, rapid emaciation, apathy and death with convulsions, was frequently confounded in former centuries with epizootic croupous pharyngitis and enteritis, anthrax, intestinal catarrh and other poultry diseases. The

plague which existed among poultry in Italy in the year 1600, which is described by Androvandi in his ornithology, appears to have been chicken cholera. Moscati noticed the plague in Brescia in 1770. In 1789 Baronio in Mailand described a similar disease, Tytler observed cholera among chickens in India in the years 1817 and 1818 and Searle in 1728. The disease ran a very acute course and postmortems revealed inflammation of the entire intestinal tract. During the cholera epidemics in the years 1830, 1831 and 1832, the disease was observed in Europe and more closely described. Chicken cholera made its appearance first in Russia and Poland in the year 1830, in 1831 in Germany and Hungaria, and in 1832 in Italy and France, and was described by Erd, Radius, Karrer, Grognier, Olivier, Leboucher, Breschet, Carierè, Blachier and Devilliers. Grognier proved that feeding of fowl that succumbed to the disease to dogs and hogs, or the consumption of slaughtered fowl affected with the disease by human beings failed to produce any variation from the condition of health.

In the year 1836, Maillet observed the chicken cholera on the Seine.

In the years 1849-52 the disease again traversed France and was described by Renault, Reynal, Delafond and Salles. Reynal proved the disease to be inoculable; healthy chickens, geese, ducks, pigeons and sparrows inoculated with the blood taken from diseased chickens died in 12 to 48 hours, dogs in 54 to 72 hours, rabbits in 10 hours and a horse in 48 hours; the disease could again be reinoculated from all these animals to chickens, who died in 10 to 48 hours after. Fresh blood (up to 96 hours old), all tissues and fluids, bile, mucus, aqueous humor and feces proved virulent. These experiments were affirmed by Delafond, Renault and Hartmann. Although Hering, Salles and Hahn believed in the infectiousness of the disease by cohabitation or mere contact, the results of the experiments carried on by Delafond, Reynal and Renault proved the negative. In the years 1865 and 1866, the disease was prevalent in Hungaria, and was described by Hartmann under the name of "Huehnerpest."

In the years 1871 and 1872 the disease made its appearance in

the northern part of Italy, where it was described by Sanctarchangelo, and in 1873 Zundel and Moritz observed the same in Elsase and were able to recognize the presence of bacteria in the intestines and blood, without, however, describing them closely. In the year 1876 the disease was observed in East India, and appeared in European Russia in 1877. Here the disease was more closely studied by E. Semmer, of Dorpat; great numbers of micrococci, two-linked chains and rods were found in the intestinal tract and micrococci and diplococci in the blood. The disease was always transmitted to healthy chickens by feeding the intestines of those that had succumbed.

In 1878 the disease manifested itself in France and Italy, and was studied and described by Perroncito, Toussaint and Pasteur. Toussaint and Pasteur produced cultures of the micro-organisms of chicken cholera in urine and chicken broth, and proved that inoculation of these cultivated micro-organisms would produce the disease. At the same time Pasteur was successful in attenuating the micrococci of chicken cholera (by continued cultures, allowing free access of pure, filtered air) to such a degree that chickens inoculated with such cultures only became slightly indisposed, and after that enjoyed a perfect immunity from the disease. This discovery caused Pasteur to prosecute his successful investigations with the contagion of anthrax and erysipelas.

*Symptoms.*—At the first appearance of the disease the chickens while apparently in the best of health suddenly become listless and dull, have an unsteady gait, roughened plumage, wings hang at the sides, the comb becomes pale and its edges blue, the animals lose their appetite, have great thirst, a tenacious mucus flows from the beak and nostrils, soon diarrhoea sets in, with the evacuation of thin mucous yellowish feces, sometimes mixed with streaks of blood, colicky symptoms set in, the chickens lay with their legs drawn up to the abdomen, with their eyes closed, and are with difficulty urged to rise.

Nearing the end the temperature falls, the animals become cyanotic, and die either quietly or in convulsions.

*Morbid Anatomy.*—The bodies of such as have been affected

for a longer period prior to death are much emaciated, at times cyanotic, the feathers around the anus are soiled with their feces of a semi-solid consistency, the tissues have a yellow tinge. The stomachs contain normal quantities of food masses or are empty. The intestinal tract soft, gray, yellow or brownish yellow masses, consisting of mucus, round granulated cells, epithelial cells, food debris, large quantities of micrococci two-linked chains and rods. Mucous membrane of the intestines tender, swollen and ecchymotic.

The villi are deprived of their epithelium and infiltrated with granular masses and colorless blood corpuscles, in part highly injected, its vessels dilated and filled with colored and colorless corpuscles. The liver in the first stage is dark brown, vascular, hepatic cells infiltrated; if the disease has progressed for a longer time, it is yellowish, due to fatty metamorphosis, lungs hyperæmic, foam in the bronchial tubes. Blood discolored, brownish red, thick, contains the like micrococci as in the intestinal tract.

*Course and Termination.*—The course of the disease is at first, at its first appearance, a very rapid one; the affected animals die either within a very short time or at most 10 or 12 hours. The stage of incubation after feeding upon the intestines of such as have died of the disease is a very short one. Toward the end of an epizootic the disease takes on a subacute character, the disease lasts for several days. The animals sicken not for several days after feeding (up to 14 days) and die frequently only after two or three weeks after taking up the contagion.

The *diagnosis* is easily made according to the symptoms already mentioned, the findings on post mortem examinations and the epizootic form of its appearance. It is not likely to be mistaken for croup (pips) on account of the absence of false membranes in the throat, nor with anthrax on account of the absence of cyanosis of the comb, ecchymosis and blackish brown spots in the muscles, as well as on account of the absence of anthrax bacilli.

The *prognosis* of chicken colera is always bad, as nearly all chickens affected die; toward the end of the plague, however, instances of recovery from slight attacks occur more frequently.

*Etiology.*—The chicken cholera belongs, like the cholera of man (with which it is, however, not identical) to the miasmatic contagious diseases. It originates like them from Asia, and is produced and spread by a specific micrococcus.

The animals become affected by taking up soiled food and impure water. The disease is most common among chickens, next frequent in geese and ducks, rare in turkeys, guinea hens, pigeons, pheasants and peacocks.

*Treatment.*—Clean cooked food, clean acidulated drinking water, tannin, sulphate of iron, chlorine, permanganate of potash, carbolic acid, constant attention to cleanliness and ventilation of the chicken houses. Zundel recommends infusions of pine-tops.

*Sanitary Regulations.*—Immediate separation of the healthy from the diseased, prevention of the importation of new chickens during the prevalence of the plague. Grouping of the fowl, cremation or deep burial of the dead, isolation of the diseased into separate sheds, which may be afterwards thoroughly disinfected or burnt.

For disinfecting purposes boiling water with mineral acids and chlorine are adequate. The exportation of chickens from infected places is to be prohibited.

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## DISTOMA IN LIVERS AND LUNGS OF CATTLE.

BY COOPER CURTICE, D.V.S.

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I wish to record in your journal an additional instance of the presence of distoma hepaticum in the lungs and livers of cattle in this country.

On the 4th of June last, while examining the viscera of cattle for intestinal parasites, three out of a herd of twelve from Kansas were found to be infected with flukes.

Of these three I accept one case on the authority of Mr. Samuel Collins, the butcher who called my attention to them by describing the "black, rotten liver" he had found on the day before.

The second case was affected in the liver only. The liver

had the characteristic rotten appearance, and the gall ducts were enormously thickened and enlarged. In cysts of the latter and in the mass, apparently, of the liver, were the flukes.

The third case was affected in the lungs only. The right lung had one large fist-sized tumor; the left two, located near the middle of the mass. These tumors were composed of smaller cysts in which were the flukes, calcified masses, and a brownish fluid. Two other animals of the lot had livers containing yellowish, cheesy masses, about the size of a hazel nut, scattered throughout their substance; whether these masses were caused by the distoma is uncertain. I could discover no differences between the flukes from the liver and lungs further than that those from the latter were smaller and lighter in color. I accordingly have classified them as one species.

In an old scrap-book, associated with other articles taken from the New York *Tribune* of 1870-'71, I find one by Joseph H. Batty recording the finding of liver flukes in the Virginian deer. The species is undetermined, but closely resembles *D. hepaticum*, which it probably was.

In the June number of the *VETERINARY REVIEW* of 1882, on page 100, Dr. A. J. Murray describes distoma as infecting the lungs of three out of nine Texan cattle examined in one of the Detroit slaughter houses. He quite accurately describes all of the lesions which may be found, and he was the first to record their discovery in this country. If every discovery of the fluke in this country were recorded, we could soon have data to base a knowledge of its distribution, and could thus arrive at some just estimation of the damage caused by them.

The presence of distoma in the lungs of cattle has been known in Europe since 1869, at least, and has been recorded at intervals as follows:

Rivolta records it, in 1869, in Italy. *Bull. Soc. Centrale de France*, 1881, p. 68.

Hedley found it in Dublin, Ireland, April, 1881. *Veterinarian*, 1881, p. 374.

Lindquist, in Stockholm, Sweden, in 1882. *Sidekriftf Veterinar Medicin*, 1882.

Raillet detected it in France in 1885. *Bull. Soc. Centrale de Med. Vet.*, 1885, p. 285.

Morot detects them in the same country in July, 1885, and states that in the lungs of 2,458 cattle examined, over 4 per cent. were infected with distoma. *Bull. Soc. Centrale*, 1887, pp. 38 and 64.

Duguid detected it in Edinburgh, Scotland, in April, 1887. A. C. Cope, in *Veterinarian*, June, 1887, p. 386.

Littlewood detected their presence in the lungs of sheep in Egypt. *Veterinarian*, August, 1887, p. 546.

These discoveries have all been made independently, the greater number having occurred within a year or two. For some reason, they have all occurred in the spring; probably because the fluke is at that season large and present in the tumors he causes. There is reason to believe that these tumors have been seen before, but ascribed to different causes, as echinococcus, etc., the fluke being absent or overlooked.

The frequency with which distoma frequents the lungs presents to us another phase in its life history which has not yet been sufficiently studied. The most rational theory to account for its presence there is that the embryo has passed along the trachea instead of the oesophagus, and developed in the bronchiæ instead of the gall ducts. More facts will, however, point out to us the truth of the matter.

## TEXAS FEVER AND OTHER DISEASES IN MISSOURI.

### EXTRACTS FROM THE STATE VETERINARY INSPECTOR'S REPORT FOR THE FIRST QUARTER UNDER THE VETERINARY ACT OF 1887.

The number of miles traveled officially in the last three months is.....	5,760
The number of counties visited on request, among which several were visited four or five times.....	17
Number of cattle put in quarantine as capable of communicating Texas fever.....	677
Number of deaths from Texas fever, as gathered in personal inspection....	298
Approximate number of deaths by Texas fever in the city of St. Louis, as gathered from various sources, and exclusive of the above.....	508

One inspection of contagious diseases was made outside of the

State of Missouri, with a view of preventing introduction within our borders. This was the investigation of the contagious disease brought into Illinois among the valuable imported breeding horses, stallions and mares, and which proved to be what is known as "maladie du coit," a syphilitic malady of the equine specie, hitherto unknown in America, but existing in Africa, and occasionally imported into France, whence it came to this country.

Number of horses quarantined for glanders..... 9  
 \*Number of horses or mules killed, solely by request, on account of glanders 13

(About twenty-eight head had died previously in connection with these cases).

Number of deaths by a malignant form of charbon, or anthrax, as follows:

Cattle.....	8
Horses or mules.....	5
Hogs .....	7
Dogs.....	1

Two men are now suffering, and far from saved, apparently from *malignant pustule* contracted in skinning one of the aforesaid cattle. These deaths have all occurred in two outbreaks. The first, in the county of Vernon, killed the five horses or mules and six cattle, on one and the same pasture, at short intervals, while a few other cattle are supposed to have also died from the same malady, judging from reports given me. The latter outbreak was in Livingston County, where two cattle died first, then the hogs and a dog that ate flesh of the carcasses.

#### TEXAS FEVER.

##### ANTHRAX DISEASE, SOMETIMES CALLED SPANISH FEVER, SPLENIC FEVER, ETC.

The most prevalent disease which the Veterinary Inspector was called to attend this summer was Texas fever, so called.

Indeed it broke out at so many places at short intervals that this officer was frequently unable to do justice to sufferers from

\* One man, Mr. H. S. Pierce, of Burlington Junction, Notaway County, Mo., is now himself suffering from glanders. He was accidentally inoculated in treating a horse that I ordered destroyed recently. This is the fourth case of glanders in man brought to the notice of the State Veterinarian in the last three years.

this or other maladies. Occasionally calls could not be attended to for several days after their receipt in this office. He says :

During my official labors in the past three years, I have had opportunities of observing this dreadful and destructive affection under a variety of circumstances. It is probably the most fatal malady that attacks cattle in this climate, and by far the most damaging in this State. The estimation of the losses it causes in Missouri alone must go up high into the thousands of dollars. The number of deaths recorded by one man alone, in the discharge of his complicated duties during three months, would amount to more than \$14,000, at a very reasonable estimate. This does not include the great number of deaths reported by correspondence, nor the number that occurred in St. Louis alone, which would swell the sum to more than double that amount.

Besides all those, how many cases have occurred that were indirectly reported, or not reported at all ?

In view of the errors committed in dealing with Texas fever, I respectfully submit to the people a few suggestions which, if studied without bias (putting in practice what is practicable), cannot fail to prove beneficial, and diminish the loss to a great extent. This is one of the diseases that our laws fail to keep out; therefore, until we have them improved, it behooves every stock owner to be well acquainted with its nature and peculiarities. Let every stock man and farmer study them. I will write without technicalities. I do it for the layman's benefit, and not for the professional or scientific.

1. Texas fever, or splenic fever, so called, may be termed a deadly blood disease of a dangerous character and due to the introduction into the organism of native cattle of a "germ" brought here generally by certain Southern cattle, which take them on Southern soil.

2. Southern (or other) cattle born on Southern soils where those germs exist, acquire immunity against the disease, and thus may, without danger to themselves, carry the germs of the malady in their bowels and deposit them on our land where natives may inject them and become inoculated, just on the principle that a man vaccinated against small pox has acquired immunity

against this disease, and may carry its germs accidentally in his clothes, or perhaps purposely in his pocket, and give it to others without getting it himself.

3. Horses, native cattle, etc., may sometimes, in favorable circumstances, carry the germs of the disease from farm to farm, highway to pastures, cars to pens, etc., by the agency of manure or other droppings of Southern infectious cattle. There is some doubt about the capability of diseased native cattle to spread dangerous germs emanating from their own malady. I am not prepared to say that this *never occurs*, although it may only in extremely rare and peculiar circumstances.

4. Good frosts kill the virus that may be stricken thereby, but in certain localities frosts may never be strong enough to kill it for some time after the first one. The months of April and November are, as a rule, not sufficiently cold during their whole period to effect disinfection; and indeed I have on record cattle that were brought into Missouri in the latter part of February or first days of March, that disseminated germs causing the development of Texas fever later in the warmer months.

5. Consequently infected pens, barns, and especially pastures, may be considered dangerous between the last good frosts in spring and first *heavy ones* in fall—not the very first one.

6. Washing, scrubbing, disinfection with carbolic acid lotions, chloride of lime, and other mild antiseptics, are not always sufficient to kill all virus and prevent danger.

7. Public stock pens, yards, cars, unfenced railways, are common distributors of the germs of this affection as well as of some others.

8. The germs of the disease, it appears, may cause the malady several months after their spread in our fields or other places in our climate.

9. Acclimated Texas cattle, when they have passed a certain time, including a winter, in this country, are subject to death by the effect of Texas fever the same as are natives. There may be some exceptions to this, and perhaps certain conditions may yet prove variability, but I have observed this occurrence.

10. The germs of Texas fever stay a certain period in the

Southern individual in our climate, during which they are dangerous. The exact duration awaits demonstration.

11. It is idle and foolish to argue, as some people of Texas have done, and to my astonishment, as some reputable newspapers of Missouri have taken up, that there is no such thing as "Texas fever, or "Spanish fever," or "splenic fever." Any man who has had any experience with that malady in his herd can, if he will be truthful and sincere, reduce such childish talk to insignificance.

Now, the above facts being known, the people should not neglect to apply the regulations that are thereby rendered obvious. For instance :

1. Be always, under any circumstances, most cautious in putting *branded* cattle among native stock, for they may have come recently from regions where the germs of Texas fever exist; in fact, it is safer to avoid this practice entirely in summer months.

2. Never import Southern cattle among natives between at least the first of March and first of December.

3. Cars for shipment of native cattle—during these months especially—can never be too thoroughly cleansed and disinfected. In fact, it would pay always to scrub the cars well and then *sprinkle thoroughly*, or better, *immerse repeatedly* the car floor and walls with a solution of *corrosive sublimate*, one part to a thousand of water. It is cheap, and if applied in cars in a locality where there is no grass, no well, no running stream or drinking water, and if the disinfected article be allowed to dry, it is entirely safe. It may be safe with less precaution.

4. Stock yards, pens, alley-ways in public stock markets, should be so arranged that Southern and native cattle may be kept separate and never trample the same grounds, for it is impossible to disinfect sufficiently the stock pens of public markets. They should, therefore, be divided into two sections, one for each class of stock.

5. Southern cattle should not be allowed on the highways or ranges during the months alluded to. In counties where there exists a stock law, this point is less important, and yet it would avoid damage even there.

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6. Keep cattle away from *unfenced railway tracks*, public railway stock pens, and places where railway cars are cleansed, and where switching takes place, for we know not at what moment the germs of the disease may be deposited in those places.

7. Of course, *under no consideration* should native cattle and Southern cattle be allowed together, or on common grounds the former after the latter, for then it is running towards danger, unless it be after severe frost.

8. Southern cattle should be considered dangerous for native stock for the whole summer period between severe frosts, until it is positively proved how long they can transmit the germs of Texas fever. Pastures remain infected till well frozen.

9. So far as I can judge, medical treatments are of little or no use as curative or preventive. Nature is perhaps slightly assisted in supporting the disease, when the bowels are kept open with green food; for instance, green corn, assisted by raw linseed oil.

*Diagnosis.*—A mistake can hardly be made in diagnosing this disease. Its lesions and symptoms may resemble, to a certain extent, those of so-called *essential charbon*, or essential anthrax, and it may be necessary sometimes to withhold an opinion for a while regarding the cause and origin, especially when no satisfactory conclusions can be immediately arrived at on the grounds, or from the history of the animal, and that for certain reasons a satisfactory investigation cannot be made immediately before leaving the spot. But the *nature* of the malady can always be told if sufficient symptoms and lesions can be seen by an expert.

*Symptoms.*—I do not intend to describe here all the numerous symptoms of Texas fever, but I desire to draw the attention of the people to a few striking and characteristic sights and lesions which even the unexperienced may recognize to advantage, and thereby avoid perhaps great losses.

The animal's head is carried low, nose near the ground; milk suddenly disappears; appetite rapidly disappears; rapid loss of flesh and rapidly increased gauntness, or hollowness of flanks; a slight cough sometimes occurs, and occasionally also a little

bloody fluid runs out from the nostrils. These are not common.

There may be either slight diarrhoea or constipation, and blood, in small quantities, sometimes oozes from the bowels with the natural discharges. The subjects soon become very weak, have a reeling or staggering gait, particularly noticeable when pushed sideways on the hip; the form of staggering suggests to the mind the unsteadiness of alcoholism, or the "drunkard's reel;" more or less slobbering sometimes occurs at the mouth; stupidity becomes extreme; weakness soon becomes such, in many instances, as to force the animals to lie for comparatively long hours, and then they seldom can rise without strenuous efforts, if, indeed, they can rise at all.

During the increase of these symptoms the patients may be seen to pass highly-colored urine, which gradually becomes darker, and finally assumes the hue of coffee, with a thicker consistency. Death may occur in thirty-six hours or several days after the appearance of the first dumpishness. In the majority of outbreaks the disease has had a duration of two to three days, in my experience, but some live five or six days. Ten to fifteen per cent. recover, and a very few die from the effects of a relapse occurring after one or two weeks of convalescence.

In opening the body the blood will be found black and fluid, not coagulated and solid in the veins or arteries. The inside of the heart (endocardium) may present irregularly-shaped dark-colored patches or stains, not elevated sores; the lungs (lights) occasionally may be found congested—*i. e.*, impregnated and darkened with blood; this is not common, however. The liver may be congested also, and enlarged, but does not appear so dark. The lesions in these organs may be overlooked by those unacquainted with anatomy and pathology; but here are lesions that anybody can detect, and they are *constant and characteristic* of splenic fever: The spleen (*melt*) is *increased* in size, *darkened* and *softened*. All these conditions of this organ may be more or less marked, however. Sometimes the *inside* of the *covering*—the capsule—is so softened that the substance can be pressed from one extremity to the other, as one could press jelly from one end to the other in a closed sack. At other times, of course, it is

more solid. In tearing the organ open with the fingers we may find it is as easily penetrated as a mass of cooked oatmeal; it has a dark brown or black color, and resembles somewhat thick, but soft, crushed black raspberry preserves. The bladder is generally full of dark-colored water. The kidneys may present some alterations unappreciable to the ordinary observer. Occasionally they are friable and dark.

If the animals were on dry food, the third stomach (manifolds) may be full of hardened, and more or less dry food. This must not lead to the belief of having a case of so-called "dry murrain," as sometimes occurs. This condition of the third stomach on dry food is a reasonable consequence of the impaired digestion and the fever occurring in the disease. When the animals are on soft feed this condition is not observed, or is very slight.

In conclusion, I will say that the stupor, rapid falling off of flesh, increasing gauntness, bloody or dark urine, and soft, enlarged spleen, with a history showing the origin of the disease to have been from foreign cattle, or imported germs, are conclusive evidences of the existence of splenic or Texas fever.

When this is known, the healthy native animals should be immediately removed from where they became sick, and from foreign cattle, and not remove the foreign cattle and leave the natives on the infected grounds, as is frequently done. By this means those that may have, to the date of separation, escaped the infection of the germs, may stay free. Those already infected, however, whether sick or not, may succumb later. I consider it wiser to remove healthy natives from the grounds where the diseased natives are left.

#### MALADIE DU COIT, DOURINE, ETC.

Under this heading may be described a syphilitic disease of the equine specie—horse, ass, etc. Owing to its mode of transmission, it is naturally special to stallions and mares, but of course may be inoculated to any animal of the equine family. It was spread at different times in European countries by stallions from Syria. It was observed and studied in France, Germany, Russia, etc., and now may be found occasionally among Arabian horses and other breeds on the coast of Africa on the Mediter-

ranean sea—Algeria and Tunis, for instance. It was imported to De Witt County, Illinois, by an imported stallion, presumably from France. Algeria being a French possession, we may imagine how the disease may have come from there, and thence here.

So far as I could gather from various sources in my personal investigations of that disease so near our borders, six imported stallions have died from its effects, and fifteen diseased are now in quarantine. Three hundred and ninety-six mares were bred to affected or suspected stallions, seventy-five of them became affected or are suspected, and 48 per cent., according to some, 50 per cent., according to others, of the mares that became diseased have died from it. On account of the breeding records kept, it was comparatively easy for the State authorities to trace every suspicious case that had not left the State. So far as known, only three cases—one stallion and two mares that were exposed—have left Illinois for parts in Nebraska, Michigan and Massachusetts, respectively. All dangerous stock is strictly quarantined.

The disease is a severe blow to the farmers of De Witt County, Illinois. In order that our horse-raising industry may not suffer from the same source, nobody should buy brood mares or stallions from the county above mentioned, especially from the neighborhood of Clinton, without a certificate of health from the State Veterinarian of Illinois, or some of his regularly appointed assistants. In fact, the same precautions should be taken in buying such stock in the neighborhood of De Witt County for some time to come.

The disease is a slow progressing one, but generally fatal or incurable, and very hideous in appearance. In due season I shall describe it to the people, as I intend to do a few diseases that seem to be transmitted more or less directly by heredity, and which the agriculturists of the State should know and understand.

In my next, or some future report, I intend to write again concerning glanders. I had very little time during the last three months to attend personally to outbreaks of this malady.

Respectfully submitted.

PAUL PAQUIN, M.D., V.S.

## MALADIE DU COIT.

By J. D. HOPKINS, D.V.S.

[Extract from his Report to the Stock Growers' Association.]

(Continued from page 354.)

## STALLIONS.

In the benignant form in stallions the symptoms of the disease do not appear to be so marked as in the mare, and not unfrequently several weeks pass away without any indication of its existence being manifested ; at other times it appears in a few days after *coitus*, as an indolent, oedematous, but intermittent inflammation of the prepuce ; and in some cases there is oedema with collapsus of the penis.

The disease may become aggravated and malignant, as in the mare.

In the commencement of the malignant form of this malady in stallions, the symptoms are sometimes so trifling that they are likely to pass unperceived, especially if the disease is unknown in the country.

Its primary manifestations are uncertain ; sometimes it appears early, at other times there is a long lapse before its presence is ascertained ; and again, it may remain latent and only develop itself after the excitement of coition.

One of the first symptoms is swelling of the prepuce, which increases in volume ; the infiltration extends behind to the scrotum, and is limited in front to the extremity of the sheath, where it forms a semi-circular ring ; though it may spread beneath the abdomen to the sternum, the skin being infiltrated and thickened, and on the sheath smooth and shining, while the swelling itself is doughy and indolent. This is frequently the only symptom visible for a long time, and stallions have had it for eight, ten and twelve months before other symptoms were exhibited.

After a certain time these local symptoms are accompanied by others of a general character. There is dullness, pawing, and loss of condition, though the appetite is unimpaired.

In some cases the testicles remain healthy ; in others they are larger, pendant, and betray more or less morbid sensibility.

In order to examine the penis, a mare should be presented to the stallion, which, at the commencement of the affection, has lost none of his ardor; though, at a later period, this decreases until copulation can scarcely be effected. The penis, when completely erected, in the majority of cases offers nothing abnormal; sometimes the mucous membrane is redder, especially at the transverse ridges, and it may even bleed at certain points, but this is not a distinctive feature of the disease, being frequent with stallions which are much used. At other times the penis has a faint bluish or violet tint, which forms the basis for a kind of a large ecchymotic spot, generally elliptical in shape, varying in diameter from one-third of an inch to an inch, and deeper in color than the other portions of the mucous membrane. These spots are neither above nor below the general level.

Other more conspicuous and more numerous spots are observed nearer the glans; these have a yellowish-white hue, which contrasts strikingly with the color of the mucous membrane, and their diameter varies from one-thirtieth to one-sixth of an inch; their border is well defined, though not raised, and altogether they look like the cicatrices of minute superficial ulcers. It is probable that they are the remains of vesicles which have been destroyed. The organ is often infiltrated, and its head is so increased in size that copulation is difficult or even impossible.

Some observers have noticed atrophy of the penis and testicles.

When the stallion has been put to the mare, it is remarked that after the genital excitement has passed off, the penis is not retracted within the prepuce as usual, but remains in a state of semi-erection for hours; and even after this has passed, it hangs beyond the prepuce, soft and wrinkled, to about the extent of an inch; usually micturition is frequent, and it sometimes requires a long preparation, the efforts appearing to be painful to the horse. The animal stretches, separates the posterior limbs, while the penis is protruded and pendant, and these manœuvres may be repeated several times before any urine is passed; this takes place by a little uninterrupted jet, the thickness of a quill, and the fluid is thick, yellow, and viscid like synovia.

It has been found to contain albumen. After micturition

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the horse paws and appears uneasy, as if the urine irritated the urethra.

The disease may remain for a long period limited to the swelling of the sheath. After a time it is perceived that the animal is not so vigorous as usual; rests more frequently, and does not evince much ardor when mares are exhibited; as yet the appetite is good, but there is loss of condition, and also gradual emaciation, which is scarcely noticeable until after several weeks or months; the coat looks dry and the skin tight and inelastic, and the slightest pressure on the loins causes the horse to evince symptoms of tenderness. Soon afterwards difficulty is observed in walking; there is swaying of the croup, and apparent weakness of the posterior extremities, standing is fatiguing, and the hind limbs are alternately rested twenty or thirty times a minute; still later, when trotted the animal goes as if its loins were affected; the croup swings from side to side, and it, as well as the hocks, is much flexed when the pace is suddenly checked.

There is a marked lameness of the hind or one of the fore limbs; most frequently it is confined to the right hind leg. The hip joints are painful, and when the hind feet come to the ground they are jerked up again, as if the horse was affected with string-halt. At times the weakness is so great that the animal falls to the ground like an inert mass.

These symptoms are intermittent. A horse that goes lame to-day may not be lame two or three weeks hence; then the lameness will again appear, and diminish or increase until the feebleness terminates in death.

There is tumefaction of the submaxillary lymphatic glands, and those in the inguinal region, and a discharge from one or both nostrils, while the eyes are lachrymose. At an advanced stage of this disease the appetite is variable and capricious; the food is eaten slowly, and the hay is often held listlessly between the lips, as if the animal forgot it was eating, or the jaws were fatigued.

In some cases a peculiar symptom is remarked; this consists in excessive pruritis confined to the posterior extremities, and which persists until death ensues. The stallion gnaws itself about

the pasterns and feet so continuously and severely as to produce serious wounds. At other times it seizes its manger or anything else accessible with such savageness that the teeth are sometimes broken in their sockets. In other cases very peculiar nervous symptoms, epileptiform in their character, appear. At the approach of a mare the stallion will be seized with a kind of spasmodic trembling; the muscles of the neck stand out in strong relief; the head is extended and shakes convulsively; the lower jaw moves from side to side; the eyelids, widely dilated, expose a large surface of the eyes, the sclerotica of which appears of a bright yellow color, while the organs themselves roll about in their orbits in a strange manner; and the respiration is snorting and excited, the nostrils being widely expanded. These singular phenomena persist until the animal has gained sufficient energy to attempt copulation. At a later period the sight of a mare does not occasion more than a nervous trembling, which is also produced by the ingestion of cold water.

The voice diminishes in sonorousness and strength, and can only be heard a short distance away, sounding husky and nasal.

The diagnosis of the disease is more difficult in the stallion than in the mare, unless the local disturbance is accompanied by the secondary nervous symptoms already noted. Observation of the consequences resulting from coition, however, soon testifies as to the soundness of the animal; for if it has a chancre in the urethra it will transmit the disease to the mares it has been put to, though apparently in good health.

As a rule, the progress of the disease is slow, and its termination most frequently fatal, though the result cannot always be predicted with certainty. With some animals which are apparently much advanced in the malady—even as far as the paralytic stage—recovery will at times occur; while with others which are evidently only slightly affected, it progresses gradually to a fatal termination, in spite of all treatment.

It is liable to intermissions and remissions or paroxysms. The swelling of the prepuce may be the only symptom for a long time, and this should arouse suspicion, especially if the horse has come from an infected locality; and particularly if there is weak-

ness of the hind quarters, lameness, knuckling over at the fetlocks, and loss of condition without impairment of the appetite.

The disease may continue from three months to three, four or even five years. The mortality varies from 40 to 70 per cent., according to the constitution of the animal, condition, manner of keeping, and climate of the country. The mortality is greater among stallions than mares.

The contagium of this disease is "fixed," and from what is at present known of it, is only contained in the secretions of the genital mucous membrane (that lining the urethra of the stallion and the vagina of the mare), and in the vesicles or ulcers.

It does not exist in the blood. It is inoculable, and at times very potent; but it does not appear to have any action on other than equine and asine species.

The contagium obtains access through the generative organs, and we have no evidence to show that it may be received in any other channel.

It is transmitted from the stallion to the mare, or *vice versa*, in the act of copulation. The highest bred animals are the most susceptible.

The duration of the latent period does not appear to be fully determined. Maresh says it varies from eight days to two months. Haubner gives it an incubative stage of three to six days in the benignant form. The same authority states that the malignant form may be longer than two months in appearing. Viardot gives it fifteen days to two months. Venereal excitement appears to diminish its incubation, as it also tends to induce its more rapid development when it has appeared. Owing to the long stage of incubation and duration of the malady, it may be carried to the more distant regions by one infected animal.

From the figures at present accessible, it would appear that of the animals exposed to the infection about one-third become diseased. Cohabitation, without actual contact, will not produce the malady.

A study of the above disease will repay those interested in horse breeding, and I recommend to their consideration Fleming's

Sanitary Science, Williams' Principles of Veterinary Medicine, and Lautard's translation from Zundel, works which I have drawn upon in describing the symptoms of maladie du coit. These books contain an exhaustive description of the symptoms, pathology, treatment, post-mortem lesions and sanitary regulations necessary to control or stamp out the contagion.

As this outbreak among the horses in Illinois is the first appearance of maladie du coit on this side of the Atlantic ocean, veterinarians called in to advise did not at first recognize the disease. It was only when the malady became widespread, and in the number infected presenting all the different characteristics, that its peculiar nature became understood. This delay in diagnosis has been the cause of much loss to horse breeders in Illinois, which might have been, in part, at least, avoided, if the owners of the suffering animals had early reported to the sanitary authorities of the State.

In the preventive of the spread of maladie du coit from Illinois much, indeed everything, will depend on the intelligence and experience of the breeder, whose interests will not allow him to purchase breeding stock in an infected locality, because of the grave liability of carrying a pestilence to his home herd. Veterinary inspection will fail to detect the disease in the benign form, and the *benign form is just as contagious as the malignant.*

Legislation should be had in every State, giving the sanitary authorities *ample* power and means to quarantine all suspected animals, and to *kill* all that develop the disease; to castrate all infected stallions, and thus prevent their use forever as sires. As the disease has invaded our country through a neglect of the enforcement of sanitary laws, I am of the opinion that the Government should indemnify all owners for animals destroyed because of this disease. The State, in granting an indemnity for horses afflicted with maladie du coit, insures the prosperity of the people by making it to the interest of all breeders to report the existence of the disease to the sanitary authorities, who may at once take such action as will prevent its spread. In a community devoted to the horse-growing industry, this disease is much to be dreaded, because of its peculiar nature; the manner of its spread;

the fact that it resists remedial agents; its mortality; and the ease with which it is transported from herd to herd.

There is no doubt but that the sanitary authorities of Illinois will do all that is possible under their laws to prevent an extension of this plague from its present locality. But it seems to me impossible for them to hold in quarantine the two hundred mares and nine stallions affected with this disease for a term of *three years*; and it must be remembered that these animals are owned by about fifty different farmers, widely separated.

It is not reasonable to suppose that these quarantined breeders will submit to the official supervision of their herds for such a long period; and in this country, with our present sanitary laws, it is folly to imagine that the Live Stock Commissioners of Illinois will be able to successfully maintain a three years' quarantine. While maladie du coit is confined to the horses of De Witt County, Ill., it would be a profitable investment for the State to pay for and slaughter every infected animal. The expense would be trifling in comparison with the immense capital invested in breeding horses.

Already the confidence in the horse traffic (breeding stock) is shaken, and the people of Illinois who by their foresight and energy have created a large trade in Norman-Percheron stock, and have thus added to the material wealth of the country, must lose their business or remove to more favored and healthy locations.

If Wyoming buyers of breeding stock (horses or mares) would preserve the prosperity and integrity of their herds, they *must not* make their purchases in a district where maladie du coit prevails.

**THE RESPIRATION IN PARALYTIC RABIES.**—An account of some careful observations on the respiratory rhythm of rabbits suffering from artificially induced rabies is given by Dr Ferré in the *Journal de Médecine de Bordeaux*, No. 1 (Aug. 6th). The graphic tracings show very clearly the gradual change in type of the respiratory rhythm, which is normally composed of short rapid waves, as seen in the tracing; the respirations become slower and deeper, so that just before death they are six times less frequent than during health. Ferré proves that the first phenomenon of rabid infections is a distinct slowing of the respiration.

THE NATURE OF THE AMERICAN SWINE PLAGUE  
IN REGARD TO ITS PREVENTIVE TREATMENT BY VETERINARY  
POLICE AND HYGIENIC METHODS.

BY FRANK S. BILLINGS, D.V.M.

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[Read before the Massachusetts Veterinary Association by its Secretary, Dr. L. H. Howard.]

(Continued from page 358)

SWINE PLAGUE IS AN INFECTIOUS DISEASE.

Both contagious and infectious diseases have causes other than the one specific or exciting cause, the inficiens proper.

The most striking of these etiological influences, and the one in general most difficult to combat, as well as the one which we know absolutely nothing about, except its existence, and probably never shall know anything more about it, is the racial, or species, cause—a *causa interna*—that peculiar unknown factor which exists in the greater number of individuals, in certain species of animal life, which of itself predisposes such individuals to certain diseases to which the individual members of other species have no such predisposition. This condition is known as the natural, or racial, predisposition. The human race has this natural predisposition to the measles, mumps, scarlet, typhoid, typhus and yellow fevers, cholera, syphilis, etc. In fact, unfortunate humanity seems to have been especially selected by nature as an example of this natural predisposition. Why we don't know. It certainly is not because

"In Adam's fall  
We sin-ned all."

No sensible man believes such "rot" as that, now-a-days. The bovine species has its contagious lung-plague and rinderpest; the canine its rabies; the ovine its variola, or pox; and the porcine its swine-plague. Other diseases of this nature, while primarily developing in (contagion) or infecting a given species, are still susceptible of accidental (not natural) extension to other species—glanders, foot-and-mouth disease, small-pox, rabies (again), the German "wild-seuche," etc.

This transmissibility, I wish again to emphasize, has nothing to do with the natural peculiarities of such diseases in most cases. It simply shows that they are capable of inoculative transmission, either by accident or experiment.

Although we know absolutely nothing as to the physiological conditions upon which this racial, or natural, predisposition depends, still empiricism has shown its existence to be a most expensive biological fact. To its existence are directed all our endeavors at prevention by means of artificial inoculation with a modified virus—a subject I will not touch upon further at present.

It is generally a much easier question to arrive at the fact that a given disease is contagious (if we only know what we mean by that word), and to combat the extension of such a disease, than it is to understand and successfully prevent such an infectious disease as the swine-plague or the Asiatic cholera.

In the first, we render all contact impossible between healthy and sick or exposed individuals or their surroundings. In the case of animals, we kill the diseased ones, and if necessary the exposed; we air the stables and subject them to a suitable cleansing and disinfecting, and our work is done.

In other words: In contagious disease we seek to do away with the living, movable, primary centers of contagion, or to so restrict the movements of such objects, that no susceptible organisms can come in contact with them. In infectious diseases we have to do with numerous fixed centers of danger (infection) as well as numerous living, moving, transient centers, capable of causing innumerable newly infested fixed centers of danger. Aside from these, we have the infected material itself, which must be kept local, and also so change these local conditions as to render them unsuitable to serve as a medium of support and development to the inficiens proper.

It is easy to be seen that between two devastating diseases—say, pleuro-pneumonia and swine-plague—it is a much easier matter to stamp out and prevent the contagious than it is the infectious disease.

It will also be found that where vaccination or preventive in-

oculation is possible (small-pox and—it should be said—pleuro-pneumonia), that the same will be found much more practicable in contagious than infectious disease, because in general the former possesses a much greater regularity and constancy in virulence, and because locality plays a very insignificant *role* in contagious disease in comparison with infectious.

A State Veterinarian lately visited Lincoln, Neb., and appeared before the Committee on Live Stock in the Legislature, and gave them the following advice :

*"In order to clear the State of swine-plague, the State authorities should kill and pay for all the diseased and exposed swine in the State, and stop all importation for sixty days."*

If the above words were truly reported to me, they simply show that that State Veterinarian knows absolutely nothing about the true nature of the American swine-plague.

Were every sick and exposed hog in the United States killed at one swoop—aye, more: were every hog in the United States to be killed and cremated at a given hour on a given day, and all importation stopped for 120 days, or even for 180 days, it would not kill the disease out.

Why ?

1. Because it is primarily due to local infection.
2. Because no attention had been given to hog-pens, hog-runs, straw-stock, etc., nor the places where diseased hogs had been buried previously.

These facts make the outlook for preventing the swine-plague rather dark and discouraging at first sight, but it is not so difficult an undertaking as it appears.

1st. All hogs held in small lots, and stock hogs, can be rendered safe by artificial inoculation for one year at least, and perhaps longer.

2d. By the united action of State and railroad authorities, buyers, breeders and owners, the traffic and movement of diseased swine can be rendered next to nothing, and by quarantining all such swine to the infected locality, and then properly treating them, we can soon control the swine-plague; how, will be shown in the appended regulations.

To combat an enemy, we must first discover its nature and resources.

These have been fully demonstrated by my researches in Nebraska, the only assistance I have found being in the work of Dr. Detmers, which so largely supports my own, though done previously.

The preventive treatment of swine-plague must be directed, then, to :

1. All places where the disease exists, or has existed within two years.
2. All sick or exposed swine, or any persons, animals or objects that may have been in contact with such.
3. The conveyances of common carriers.
4. The burial places of diseased swine.
5. The contamination of waterways.
6. Controlling importation.
7. Placarding, with signs marked "*Swine-Plague*" (white letters on black ground), every place where the disease exists or has existed, until declared free from all suspicion by the State authorities.

This regulative and hygienic method of prevention is directed entirely to the supporting or secondary causes of swine-plague. Its purpose is to prevent the action of the inciting cause.

#### *When Swine-Plague Exists in Adjoining or Distant States.*

In this regard there are two essential points which demand earnest consideration on the part of the respective State authorities :

1st. Swine-plague introduced by diseased swine from other localities.

2d. Swine-plague introduced by means of uncleansed and non-disinfected railroad cars or other conveyances, the property of common carriers.

Let us consider the first of these conditions.

All importation of swine from another State, either for stock or feeding purposes, whether or not such imported swine come from States or localities in which swine-plague exists, should be

prohibited by law, unless the authorities of the State into which such swine are being imported provide suitable and safe conveniences for the absolute isolation and quarantining of such imported hogs at selected points of entry, so that each lot can be safely and securely confined in a previously cleansed and disinfected hog-pen.

In all such cases the State would be liable should the imported hogs become infected while in the quarantine pens, if the latter had not been previously cleansed and disinfected, or, on account of neglect of duty on the part of any servant of the State attached to the quarantine.

In order that the pens of such a State quarantine station shall constitute a safe and suitable place for such imported hogs, it is absolutely necessary that they be individual pens of variable size, that the walls be made of the hardest bricks and the gates of iron, and if any portion of the pens be roofed that the same be of iron also, and the bottoms made of cement, not pitch, asphalt. The feeding troughs should be made of stone or iron and of such a size as to be convenient to handle and cleanse. The pens should be at least ten feet apart; the passage-way between them should be made of cement asphalt and so graded that the drippings or washing from each pen could not run over to the opposite pens.

The entire quarantine grounds should be paved with cement asphalt and seweried. The drainage from each individual pen should enter the sewer from a trap within the walls of the pen, so that in washing them no material could possibly get outside the pen.

The quarantined hogs should be inspected daily by a competent Veterinary Inspector, for a period of twenty days subsequent to their arrival upon the State territory into which they were imported.

If no evidence of swine-plague or other suspicious disease occurred during that period, the hogs should be declared free and released to the owner.

The State authorities should take such measures as would insure their further transport into the State in ears or conveyances that had been previously cleansed and disinfected under the eye

of a trustworthy inspector, whether said cars or conveyances had been previously used for a transport of swine or not. (Farmers' wagons should be looked upon with suspicion and treated in the same manner as the conveyances of common carriers.) In such cases every means of transport must be looked upon as "suspicious" and treated as such.

Should the swine-plague break out in a lot of imported hogs while thus quarantined, the pen in which they were confined should be cleansed, washed and disinfected daily. All straw and refuse should be carefully removed in iron hand-carts made for the purpose and then burned.

The quarantine station should be provided with a furnace (or oven) for burning such material and for the cremation of the carcasses of any animals that should die or be killed on account of a contagious or infectious disease. The greatest precautions should be taken, in conveying such refuse material or carcasses to the crematory, that nothing dropped upon the passages of the quarantine.

When an outbreak of the swine-plague (or other contagious disease) has come to an apparent end among the quarantined swine, the period of isolation and observation must then be extended at least thirty days from the time the last sick animal had died, or the last suspicious symptoms had entirely disappeared among the lot of hogs that had been affected. At the expiration of that period the hogs may be delivered to the owner unless other suspicious symptoms have made themselves apparent within the allotted time.

The same precautions should be taken in their removal as have been previously mentioned.

Upon arrival at the owner's premises, the latter should be compelled to provide suitable conveniences for a further isolating and quarantining such swine for still another twenty days before he should be permitted to place them among other hogs upon his place. Whenever a lot of swine-plague diseased hogs were thus quarantined the chief inspector of such a government station should detail one person to take the exclusive care of such diseased hogs, and absolutely prohibit such a persons going near,

or having anything to do with other healthy lots of hogs that might be in the quarantine at the same time, or with any hay, straw, feed or utensils destined for the use of the undiseased hogs. The person having charge of the swine-plague diseased hogs should be provided with separate buckets and utensils necessary to their care, and with hay, straw and feed for their use, to be kept in a special place, as near to the diseased hogs as possible. He should also be provided with a suitable disinfecting solution (corrosive sublimate in water, 1 to 1,000 parts) to wash his hands and boots with each time he had been busy about such diseased hogs. Said disinfectant should be kept near the pen in which the diseased hogs were confined. The State government should fix the price per head, for all hogs thus quarantined, and should positively forbid the inspectors from charging owners any extra fees.

*(To be continued.)*

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## COMPARATIVE LESSONS OF BRAIN WOUNDS.

BY DR. G. ARCHIE STOCKWELL, F.Z.S.

(Written especially for the AMERICAN VETERINARY REVIEW.)

*(Continued from page 362.)*

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3. "June 2d, 1860. Dr. S. and myself summoned to an adjoining county to see Wilson Shaw, a young man 20 years of age, said to have had 'a gun barrel blown completely through his head.' \* \* \* Found accident had occurred twenty-four hours before as the result of firing a musket of the Tower pattern (flint-lock, converted,) known to have been loaded for upwards of a year. He had been knocked down by the force of the blow, but immediately recovered and walked unaided to the house, thirty rods away. There was not, neither had there been, any loss of consciousness, nor any evidences of paralysis. His senses were naturally acute; he made no complaint, and denied suffering further than that his head felt a 'trifle sore' and the 'left eye painful;' as his sole anxiety was that some portion of the gun barrel, which he declared was buried within and 'at about the middle of the head,' should be removed.

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“On displacing the bandage we found the left eye slightly protuberant, the surrounding tissues bruised and ecchymosed, and the forehead generally burned and blackened with powder. To the left of the median line appeared a large, irregular, somewhat triangular shaped opening, a trifle more than two inches in extreme length, and about fifteen lines in breadth, the upper portion tapering to an obtuse point; the narrow base of the triangle corresponded to the inner half of the superciliary ridge of the same side. From this opening disintegrated cerebral substance was oozing, the man having already lost, according to the testimony of attendants, ‘not less than six or eight tablespoonfuls, heap-ing full.’

“On examination was found the tip of a screw just within the skull, the body extending deep into the brain, and an attempt to move further revealed its connection with some other substance farther back. Introducing a finger, it was found to pass through a solid iron block slightly larger than the little finger, and at right angles, forming a ‘T.’ This second piece was discovered to lie in a slanting direction from below upward and backward—the lower portion hooked behind the posterior edge of the roof of the left orbit and the lesser wing of the sphenoid, in the middle fossa of the base of the skull, its point projecting into the sphenoidal fissure pressing upon the nerves and tissues at the posterior portion of said orbit; hence the protrusion of the eye-ball, and the pain complained of when traction was made upon the screw; the other, or superior end, extended to the vertex, being firmly *jammed* upon the under side of the skull immediately to the left of the *falk*. It was now understood why an attempt made to lift the lower arm from behind the lesser wing of the sphenoid, by employing the screw as a lever, was futile.

“The next indication was to push the screw upward and backward in order to tilt the upper arm of the larger solid backward and downward, and thus secure room to lift the whole from behind the sphenoidal wing by a like movement; but this, too, was a failure, since the skull at the upper edge of the wound refused to allow the point of the screw to pass.

“After a vain attempt to shorten the screw with such ap-

pliances as were at hand, a portion of the skull was excised (sufficient to permit its point to pass within the cranial cavity), when the mass was lifted and removed from its bed, and proved to be the breech-pin of the gun, a solid mass of iron of above *five ounces weight*. It was *three-and-one-fourth* inches long, and *five-eighths* broad by *one-fourth* thick along its flattened portion, except the breech screw-head, which was *five-eighths* in diameter by *three-fourths* long. The screw which passed through this at right angles was *two-and-seven-eighths* long, and was bent at the point where it passed through the pin, wedging it tightly, preventing it being pushed backward and through the breech by this bend; it also stood at an angle of thirty degrees, with its point leaning toward the breech-screw head, the portion that lay against the vertex.\*

"In seeking other foreign bodies fully a teacupful of disintegrated brain was removed. At the depth of *four-and-one-half* inches, actual measurement, two pieces of bone, each something more than half an inch square, were found imbedded in the left posterior lobe of the cerebrum; several smaller fragments and numerous crumbs were also removed.† \* \* \* Then, after gently scraping the torn and bruised walls of the cavity, and cleansing the edges and surfaces of the membranes, a plug of oiled lint was introduced and secured by adhesive straps and bandage."

Subsequent details are of little moment. *Hernia-cerebri*, the bugbear of authors, supervened, but was freely excised with the knife, and the patient was discharged five weeks from the date of

\* In all, the bulk of brain lost could not have been far from seven or eight ounces by measure—fully the latter figure if the estimate of attendants may be relied upon!

† I omit the experiments made to determine the sensitiveness of the cerebrum. Suffice it to say Shaw readily estimated the character, quantity, temperature, feeling and position of everything introduced within the brain. A pair of surgical scissors he declared felt like "smooth iron or steel," and that the points were the "least bit higher and just between my ears. But the brain was without tenderness. While standing by and watching Dr. Willson, who was conducting these experiments, I expressed surprise at the accuracy of sensation, whereupon Shaw laughed and said: "Why, I can feel anything in there just as plainly as at any other portion of my body!"

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injury. Before, he had been a farm boy, but he now blossomed out as a school teacher, and subsequently as phrenological lecturer, temperance orator, Justice of Peace, map agent, labor agitator, and saloon keeper. He recently died in Grand Rapids, Michigan, from the effects of chronic alcoholism, and the only marked mental aberration ever manifested was a decided disinclination to pay his lawful debts, including the extremely moderate bill of the attending surgeons.

4. In July, 1872, I was personally called to see a Norwegian with a transverse cut across the head and through the brain, extending from one and one-eighth inch above, and one and a fourth inch anterior to, the left ear, to a point precisely opposite the tip of the right auricle. The cut was made by a band saw bolted to the circumference of a horizontally moving circular plane twenty-seven feet in diameter, the general appearance and application being that of an enormous *trephine*. The wound was nearly eight inches in length, following the contour of the head, and seven-eighths broad, scalp and brain being excessively lacerated. Above two ounces of disintegrated cerebral substance was removed. The case was very like those already narrated, and similarly treated, recovery being complete. Once, suspicious symptoms presenting, the lower edge of the wound was freely incised, penetratieg the cerebral tissue to the depth of an inch or more, and followed by free evacuation of pus. Seven months later the patient succumbed to the effects of an alcoholic debanch, and a post mortem revealed the brain perfectly healed, normal, and without any evidence of disease.

5. This, reported by Doctor Folsom of California, was a wound made by a saw running longitudinally, and extended from a point on the frontal bone one-and-one-half inches above the nose, to a little to the left and below the occipital protuberance. In its course it divided the superior edge of the left parietal. Nine inches in length by one in breadth, the depth varied from two-and-a-half to three inches. Recovery was perfect, with no impairment of mental faculties.

6. September 9, 1881—By an explosion in a flouring mill a stick seven-eighths square and seven inches long was driven into

the brain of a lad nine years of age; it entered as did the tamping iron in the case of Gage, with nearly the same direction, yet failed to reach the vertex. Removal was accomplished with some difficulty, and followed by a discharge of cerebral matter—half an ounce or more. By keeping the wound freely open for five weeks a good recovery was made, though at one time, owing to neglect on the part of parents, the track was allowed to become blocked, and an attack of encephalitis followed, quickly yielding when free exit was secured for pus.

7. Newfoundland dog, four years of age, was wounded by the premature discharge of a gun, the missile being an SSG *green cartridge* (swan shot packed in bonedust in copper wire cage, which goes sixty yards or more as a solid ere the pellets are dissipated!) ploughing a groove three fingers deep and two broad in the anterior portion of the head. For the sake of experiment the unfortunate's life was spared, and with prompt and careful attention wholly recovered, the cerebral portion of the wound healing by granulation; exuberant granular points were touched daily with nitrate of silver, and the entire tract dressed with surgical oakum, maintained in position by a hood. This occurred two years since. The creature yet lives and appears in no way different from other canines of his age and class, and is in considerable repute as a sire. A like incident occurred to a valuable brood mare belonging to a neighboring practitioner, but I have been unable to secure particulars. According to the owner's statement the loss of cerebral substance was considerable, and the vision of the right eye destroyed. Since, she has given birth to three foals, has been worked upon a farm, and on rare occasions driven upon the road.

*(To be continued.)*

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AN INTERESTING MEETING.—Prof Law and Dr. Salmon of Washington and Dr. Frank S. Billings of Nebraska have been invited to address the swine breeders at the sixth annual meeting of the National Swine Breeders' Association, to be held in Chicago on the 16th inst., at 10 o'clock a. m. at the Sherman House.

## PHYSIOLOGICAL PATHOLOGY.

### UPON THE VARIABLE DURATIONS OF THE DEVELOPMENT OF TUBERCULOUS.

By M. G. DARENBERG.

Pure cultures of tuberculosis bacilli, prepared by the process of Nocard and Roux, kept at  $38^{\circ}$  and inoculated in rabbits by trephining, kills them in from 21 to 30 days, with the ordinary symptoms of human tuberculous meningitis, such as hemiplegia, blindness, deafness, etc. The thickened meninges are infiltrated with pus full of bacilli, which are also found in the liver, without other microscopic lesions. Guinea pigs inoculated by trephining, die in 20 to 50 days with bacilli in the liver and the spleen, but almost always without microscopic lesions. These same cultures inoculated per cranium to hens or pigeons kill them in six or seven months, with the lesions of tuberculous meningitis.

A pure culture of tuberculous bacilli, kept at  $15^{\circ}$ , after complete development, inoculated by trephining to a very strong rabbit, has produced a cold abscess on the summit of the cranium, which made its appearance ten months after the inoculation. The animal lived in perfect health with that abscess four and a half months and was afterwards killed. The pus on the walls of the abscess, which was as large as a pigeon's egg, contained bacilli, but the other organs contained none. Guinea pigs and rabbits two and three months old, inoculated with pus taken from this animal during life, died with tuberculosis in from twenty-four to thirty days, while large rabbits, inoculated with the same pus, did not, four months after, present any morbid symptoms. This fact seems to confirm the experiments of Arloing, who has seen scrofula produce tuberculosis in young but not in adult rabbits.

The marrow of animals dying with tuberculous disease contains a few bacilli. We have seen marrow which had been dried twelve days before with chloride of lime, kill a guinea pig in 140 days, with tuberculosis of the spleen, liver and omentum. A portion of marrow which had been dried nineteen days killed a guinea pig in 200 days with pulmonary tuberculosis.

These facts prove that the duration of the evolution of tuberculosis depends on the species and the age of the animal, and also on the degree of vitality and of the quantity of the tuberculosis virus injected.—*Academie des Sciences.*

## SOCIETY MEETINGS.

### NATIONAL VETERINARY AND SANITARY ASSOCIATION,

This Association was in session at the Coates House at Kansas City, Mo., Oct. 31st and Nov. 1st and 2d. Dr. Jas. Hopkins, 1st Vice-President, was in the chair, in lieu of President J. L. Brush, of Colorado, who was absent.

Members and parties present were: Hon. Norman J. Colman, Commissioner of Agriculture of the United States, Washington, D.C.; Dr. D. E. Salmon, Chief of the Bureau of Animal Industry; Dr. J. D. Hopkins, Territorial Veterinarian of Wyoming; Dr. Paul Paquin, State Veterinarian of Missouri; Dr. A. A. Holcomb, State Veterinarian of Kansas; Dr. Julius Gerth, Jr., State Veterinarian of Nebraska; Dr. A. J. Chandler, Territorial Veterinarian of Arizona; Dr. Holloway, Territorial Veterinarian of Montana; Dr. M. Stalker, State Veterinarian of Iowa; Dr. W. Williams, Assistant State Veterinarian of Illinois; Prof. Morrow, University of Illinois; Dr. T. E. White, Sedalia, Mo.; Mr. S. Hinds, President Sanitary Commission of Michigan; Mr. Woodburn, Sanitary Commissioner of Mich.; Dr. H. B. Adair, Society Against Cruelty to Animals, Kansas City; Dr. Gadsden, Philadelphia, Pa.; Dr. F. Allen, Emporia, Kans.; Dr. M. D. Lewis, Rockport, Mo.; A. S. Mercer, Editor *Northwestern Live Stock Journal*, Wyoming; Mr. Pearson, Chairman Illinois Live Stock Commission; Mr. McChesney, member Illinois Sanitary Commission; F. W. Smith, Missouri State Board of Agriculture, etc., etc.

Letters of regret from the following gentlemen who could not attend were presented by the Secretary: Dr. A. Liautard, American Veterinary College; Dr. A. H. Baker, Chicago Veterinary College; Dr. A. Smith, Ontario Veterinary College; Dr. Osler, Pennsylvania University; Dr. Zuill, Veterinary Department Pennsylvania University; Dr. Wesley Mills, of McGill College, Montreal; Dr. McIntosh, Illinois University; Dr. Comstock, New York College of Veterinary Surgeons; Dr. Atkinson, Wisconsin; Dr. Bridges, Philadelphia; Dr. Miller, Camden, N. J.; Dr. Butler, Ohio; Dr. Robinson, Virginia, and some others.

The most important business was the discussions on Contagious Pleuro-Pneumonia, Texas Fever, and Maladie du Coit, the latter being, however, but slightly touched on, on account of pressure of work.

The announcement at the Cattlemen's Convention that the Bureau of Animal Industry intended to remove, about December first, all quarantine against Cook County, Ill., on the grounds that it was entirely free from any vestige of that disease (although some cases, it appears, were found not longer ago than two or three months), brought about a great deal of discussion. Several members favored the removal of the quarantine, while many opposed it. The Territorial Vet-

erinarians unanimously declared that they could not recommend to the Governors of their respective Territories the removal of Territorial restrictions placed against Illinois, and especially Cook County, if the Bureau of Animal Industry and the Illinois Live Stock Commission removed all quarantine now in force.

Amid the discussion, Dr. Paquin, of Missouri, introduced the following resolution, which was "heartily" seconded by Dr. Alloway, of Dakota :

*Resolved*, That while we are well pleased to know through Commissioner Colman that pleuro-pneumonia is stamped out in Illinois, we deem it unwise to remove the restrictions from the traffic of cattle from Cook County, Ill., and respectfully suggest the necessity of keeping a corps of experts at work inspecting all cattle in Cook County; and further, that it would be unwise to remove the quarantine from the traffic of Cook County before next spring.

Referred.

The Special Committee on Resolutions reported as follows on the above resolution :

MAJORITY REPORT—BY DR. HOLCOMB AND DR. GERTH.

"Your Committee on Resolutions would respectfully return the resolution of Dr. Paquin, with the recommendation that its further consideration be indefinitely postponed."

MINORITY REPORT—BY DR. ALLOWAY.

"Referring to the resolution regarding the quarantine regulations of Cook County, Ill., your committee reports that in view of the fact that no later than September 1st a case of pleuro-pneumonia was discovered in said county, and realizing the insidious character of the disease, together with the magnitude of the damage already done by this scourge in various parts of the Union, we are of opinion that the resolution should prevail."

Live Stock Commissioner Wilson, of Illinois, began the discussion on the adoption of the majority report. He referred to the report of Commissioner Colman, which stated that the disease had been stamped out, and that the Bureau of Animal Industry was willing to raise the quarantine on December 1st. He said the Live Stock Commissioners of Illinois were willing to raise it before that time, and that they would hold a conference with Mr. Colman while in Kansas City, and endeavor to have the quarantine raised on November 15th. "There has been no pleuro-pneumonia in Cook County for ninety days," said he, "and it is a great injustice to continue the quarantine longer."

Dr. Hopkins then left the chair and spoke at length against the raising of the quarantine, and consequently in favor of the minority report. He cited an instance where the dread disease had broken out in New York after fourteen months, and said that ninety days was not sufficient time for the continuance of the quarantine after a case had been discovered. "The Territorial delegates will not dare to return home," he said, "and say to their people that they have not done what they could to prevent this quarantine from being raised."

Mr. Pearson, of Illinois, explained how carefully the disease had been rooted out, and asked that the majority report be adopted.

Dr. Holcomb, of Kansas, said that if the Cattle Commissioners of Illinois were satisfied that the quarantine should be raised, he had no objection to offer.

Dr. Alloway, of Dakota, spoke against the majority report, and Dr. Hopkins delivered another speech in which he declared that the Chicago stock yards had been the hot-bed of pestilence to some extent.

Dr. Salmon, of Washington, wanted to know what steps would be taken should the quarantine in Cook County be raised. He thought some provision ought to be made for keeping up a surveillance over the Chicago stock yards until it was certain all germs of the disease were suppressed in Cook County. The stock yards were never infected.

Dr. Alloway, in another speech, thought that on account of the importance attaching to the matter, the removal of the quarantine should not be thought of. At any rate the quarantine should be continued until the first of next year, if it was for nothing more than to satisfy everybody and quiet their fears regarding the disease. If an outbreak occurred after the removal of the quarantine, the Association could be held partly responsible for it if it endorsed such action now.

Mr. S. S. Hinds, of Michigan Live Stock Commission, spoke against the majority report, and said that the Commissioners of Illinois laid very strong stress upon the fact that no case had been discovered since July 12th. The official reports stated September 10th. He thought if a line was drawn against an insidious disease, ninety days should be the least length of time for it to exist. He thought the appropriation was sufficient to maintain the quarantine a long time. It was a very difficult thing, he said, to suppress the diseases of cattle in the city. After search of an entire section for victims of the disease, a diseased cow had often been found in a cellar or a garret, and as far as he knew one might yet be discovered stowed away in an attic. If there was any haste in removing the quarantine, he would hold the Bureau of Animal Industry and the Board of Commissioners of Illinois first responsible.

Dr. Holcomb now felt, from the views expressed, that it would be prudent for the Bureau of Animal Industry to keep men in the infected territory even after the quarantine was raised. His advice to the Sanitary Board was, that since a case of pleuro-pneumonia had been found in Cook County as recently as the last part of August, it would be undue haste to remove the quarantine before spring. He thought, however, that the passage of the resolutions would be an effort to dictate to the Sanitary Board, which he believed was out of the Association's province.

Dr. Paquin said that there was no dictation in the resolution. He had presented the resolutions, but they were merely of a suggestive nature. He had visited Chicago, and thought that with Cook County in quarantine there was little danger to Missouri, as it was in a position to more closely follow the work done against the disease; yet he could not feel entirely safe.

Dr. Hopkins, of Wyoming, apologized for taking the floor again, and said that the resolution had brought about the discussion and consideration it contemplated, so that, though he was in favor of it, he would not urge its passage any longer, since its beneficial effects were apparent. It appeared to him that by raising the quarantine the people of Illinois did not take the same chances that the people of the Western plains did. It had been said that the disease was confined to the cow traffic of the city. Where the disease had existed in Philadelphia and other places, it extended into the country about them. If the quarantine was removed from Chicago, it might extend into other counties of Illinois. From one of those counties one of the cattle might get into the plains. There the animals have no yards or stables to confine them, and no bounds can be put to

the disease. As long as the diseased cattle remained in fields and ranges, it could be stamped out in places, but on the plains it could not be controlled without immense cost. The quarantine should be considered in every phase. The Commissioners of Illinois had used every effort to stamp out the disease, but, on account of the responsibility of the West in the matter, the quarantine ought not to be removed. The object of the Association's meeting was to exchange ideas and discuss the matters thoroughly, and to reap benefits thereby.

Dr. Gerth here rose and seconded the motion of Dr. Holcomb to adopt the majority report against the adoption of the resolutions.

The majority report was adopted.

Notwithstanding the adoption of this report, it was evident that the discussion on that resolution produced the desired effect, as Dr. Hopkins remarked, and that the Bureau of Animal Industry and the State of Illinois will favor quarantine longer than they said at first.

Dr. Hopkins, on opening the discussion on Texas fever, said that careless handling of Texas cattle by the Chicago, St. Louis and Kansas City stock yards, had resulted in great mortality. The disease, he said, was native not only to Texas, but along the seaboard even to Virginia. He thought "Southern fever" was the best name for the disease.

Dr. Holcomb claimed that the Kansas City stock yards had caused no serious outbreak.

Dr. Hopkins said that he had not said the cattle had intermingled here, but that a lot of cattle which passed through the Kansas City stock yards had caused an outbreak of the disease in Nebraska.

Dr. Holcomb went on to say that there wasn't an animal which came into the Kansas City stock yards from the South that the Inspector didn't see, and when these cattle were inspected and found dangerous they were put in the Kansas City stock yards quarantine pen. When these cattle were purchased the purchaser was aware that they were dangerous, and he might have imposed upon somebody else.

Dr. Gerth, of Nebraska, said that upon investigation it was found that six or seven Southern cattle had been found in the herd of cattle which had been certified to as domestic by the stock yards.

This statement created quite a breeze, but was vehemently denied by Dr. Holcomb. He said that no certificates are issued on application that a herd consists of domestic cattle unless they were such. They might have been changed afterwards. The stock yards at this place, or any other, could not afford to issue a bill of health on any lot of cattle.

Dr. Paquin said that during the past year 90 per cent. of Texas fever in the State had come from the East and West St. Louis stock yards or direct Southern transportation, and only 10 per cent. from Kansas City. This was a wonderful improvement over the two years preceding. During the year he had very few cases to attend to which came from Kansas City. He thought the Kansas City stock yards had done a great deal of good toward restricting the disease. The infectious Southern cattle, he said, were driven over the bridge through St. Louis and out on the grazing grounds where dairy cattle are kept. There were no sufficient regulations to prevent this in the city of St. Louis.

Dr. Holcomb said that in 1884 the State of Kansas lost \$400,000 from Texas fever. After the present law to restrict the disease was passed in the spring of 1885, not more than \$20,000 has been lost any year. The arrangements of the Kansas City stock yards were such that none of the Southern cattle were allowed to go into pens used by domestic cattle. The stock yards had no jurisdiction over Missouri. They could not prevent any one from buying diseased cattle, knowing them to be diseased, and taking them into Missouri, Nebraska, or anywhere else. No certificate, he said, was issued on any cattle which came from a section south of the thirty-seventh parallel unless everything was known about them.

Dr. Hopkins—How did the outbreak in Kansas in 1885 occur?

Dr. Holcomb—From direct transportation from the South; not from the Kansas City stock yards.

Mr. Hoppin, of Chicago, said that in the Chicago stock yards the Southern and domestic cattle were kept entirely separate. Where the St. Paul and Northwestern unloaded, called Section D, in the stock yards, no Texas cattle were allowed at all. Mr. Hoppin said that he was in the commission business, and by buying from the Northwestern section of the yards he had never sustained any loss. Only a quarter of the yard, he said, was entirely free to the Northern cattle. It was a matter of necessity, however, to buy all over the yard, and of course risks had to be taken. At the time Texas fever occurs is generally when not many stock cattle are sold.

On November 3d the sanitarians, who were all by virtue of their office delegates to the Cattlemen's Convention, enjoyed a ride around Kansas City in carriages provided by the Consolidated Cattle Growers' Association, and visited the Stock Yards, the Fat Stock Show, Armour's Packing House, the Exposition, etc. and in the evening some attended various entertainments at the theatres, occupying reserved seats, secured also by the courtesy of those gentlemen.

Altogether the meeting was very enjoyable and profitable. The members present only regretted the absence of their Eastern brethren, whom they trust they shall meet next year.

The officers for the ensuing year are:

President—Dr. A. A. Holcombe, Kansas.

First Vice-President—Dr. Jas. Hopkins (re-elected), Wyoming.

Second Vice-President—Dr. J. C. Alloway, Dakota.

Secretary—Dr. Paul Paquin (re-elected), Missouri.

Assistant Secretary—Dr. Hollaway, Montana.

Adjourned *sine die*.

NOTE.—It is evident that this Association of only a few years of age is becoming recognized as useful and influential by those interested in live stock. It has been the means of improvements in sanitary regulations, and has done its share towards bringing about (in the West, at least) more beneficial sanitary laws. In the future we should endeavor to give more time to papers on contagious diseases. It is unfortunate that at this meeting the necessarily long and animated discussions on contagious pleuro-pneumonia crowded out a very valuable paper on "Maladie du Coit," written by Dr. Williams, who attended to the outbreak of that disease in De Witt County, Ill.

P. P.

## CORRESPONDENCE.

### ANTHRAX OR TEXAS FEVER.

STATE UNIVERSITY,  
COLUMBIA, Mo., Nov. 10, 1887.

*Editor American Veterinary Review:*

DEAR SIR.—Dr. J. Dutcliffe, V. S. of Middletown, New Jersey, asks the readers of the REVIEW to throw light if possible on the cases of anthrax in which he found bloody urine, softened and enlarged spleen, dark kidneys, etc. May I suggest that perhaps these cases were the so-called "Texas fever." The symptoms that the Dr. describes are present in this malady, and characteristic features of it.

I send you to-day an extract of my last quarterly report as State Veterinarian of Missouri. You will find "Texas fever" extensively described in that little pamphlet. It was not written for the profession and is not perhaps entitled to any space in a scientific professional journal. Yet there may be something in it to throw a slight ray of light on Dr. Dutcliffe's cases, and others of similar nature.

Your obedient servant,

PAUL PAQUIN.

### ETHICAL INQUIRY.

*Editor Review:*

I would like to inquire through your columns whether the Board of Examiners of the Ontario Veterinary College ever created a fellowship, or if they have authority to confer that degree, and if so, on how many persons have they conferred that honor?

Respectfully,

ETHICS.

## OBITUARY.

DR. R. P. BLAKELY, who had been for a number of years practising in the northern part of New York State, died some four weeks ago, after a long illness. He graduated at the American Veterinary College, in the Class of 1876.

## CORRECTIONS.

Our friend and worthy correspondent Dr. G. Archie Stockwell calls our attention to a number of errors which have found their way into the publication of his article on Comparative Lessons of Brain Wounds, and asks us to correct them.

Page 306, for "naucrude" read *Nanocred*.  
 " 307, eighth line from top, for "also succeeded" read *has succeeded*.  
 " 358, in title, for "lesions" read *lessons*.  
 " 358, fourth line, for "occurred," read *accrued*.  
 " 358, ninth line, for "festiche" read *fetich*.  
 " 360, "for compression" read *of compression*.  
 " 361, twelfth line from bottom, for "just began" read *began just*.

## NEWS AND SUNDRIES.

**TESTIMONIAL TO PROF. WALLEY OF DICK VETERINARY COLLEGE.**—A testimonial was presented to Principal Walley from the 127 alumni of the college as an appreciation of the confidence they had in the gentleman as a teacher, and of the sympathy they had with him in the recent difficulty existing between the Dick College and the College of Veterinary Surgeons of London.

**DANGER FROM GLANDERS.**—It is stated in the *New England Farmer*, Boston, that "two men have lost their lives, one in Massachusetts, the other in Connecticut, during the present year from the loathsome disease known as glanders. In both cases the disease was contracted while the men were attempting to cure the horses by treatment." And the comment is added that "the sooner horse men learn that this disease is incurable, and that a glandered horse is an unsafe animal to have around, the sooner the newspapers will cease to record of loss of human life from treating or handling such horses".—*Nat. Live Stock Jour.*

**PROF. MCCALL ON INOCULATION OF PLEURO-PNEUMONIA.**—Unfortunately the same holds equally good with the inoculated animal, if it should have contracted the seeds of the disease by the natural method prior to or at the time of its inoculation, and as

inoculation is scarcely ever practiced until the disease has declared itself present in a member of the herd by the natural method, and consequently must have been present there for some weeks, the chances are that several animals are affected in every herd before recourse is had to inoculation. Therein lies the danger, and no doubt is the sole reason, that inoculated animals have been so frequently known to propagate pleuro among sound animals. No doubt, if great care be exercised in selecting the subjects for inoculation, and if none but non-infected animals be inoculated, the contagium cannot be spread by them; but he is a bold man who would declare that after he had exercised all his skill he could not be mistaken, and that he had not inoculated any animal who had contracted the disease by the natural method. The man is not born who can discriminate with accuracy in this matter, and I repeat therein lies the, I might almost say, sole objection to the practice of inoculation for the eradication of pleuro-pneumonia, and it is an objection which will never be got over, because it is but a limited extent of the chest of the cow which is open to percussion and auscultation.

**INFLUENCE OF THE SIRE ON THE COLOR OF THE OFFSPRING.**—Referring to the influence of the parents in breeding, a contributor to the *Live-Stock Journal*, London, says: "As far as my observation goes, a *black* sire *always* exercises an overpowering influence upon color. I have less knowledge of horses than of any other variety of live stock; but a black bull, of any variety, almost invariably leaves black calves, let the dam's color be what it may. The only color which holds its own against the powerful black, is white. This will sometimes make the offspring of a black bull, blue or dun; but a red, or roan, or red-and-white dam accepts for its offspring nineteen times out of twenty, the black color unmixed. Does any poultry breeder or pigeon breeder find that a red cock begets from hens of any other hue, nineteen-twentieths of the produce red? Yet this is what a black bull does. Do breeders of dogs find black sires thus prepotent? Probably not, for black—which appears a natural color to cattle, and to which they are glad to revert—does not seem to be so with any dogs. I

have for some years been trying to produce poultry with regular markings of black-and-white. It seems well-nigh impossible. Yet regular markings of red-and-black are easy enough, and even of red-and-white. Regular black-and-white markings are common with several species of wild birds, and pencilled fowls are common enough. But black-and-white as domesticated rabbits, dogs, horses, cattle, sheep, having the mixture, *i. e.*, in large patches of each color, are very rare indeed with domesticated gallinæ."

THE HORSE DISEASE (?) IN MONTANA.—Dr. H. Holloway, Territorial Veterinary Surgeon, returned last Thursday evening from a professional tour through portions of Madison County. The doctor found several cases of glanders in one locality. The animals were killed, and as the cases were the outgrowth of a single case which was disposed of some time ago and were confined to a limited area, the doctor thinks he has effectually rounded up the disease in that particular locality.

Being asked by a *Journal* representative as to the nature and character of the new horse disease which is proving so fatal in several sections of the territory, the doctor replied that his opportunities for making a thorough examination of the horses afflicted with the disease has been so limited that he was not prepared to give it a name. So far as his observations extended it resembled a miasmatic fever, but in no way resembled cerebro-spinal meningitis. Microscopical examination of the blood showed an excessive amount of fibrine and a shrinkage of the red corpuscles. A sufficient number of examinations have not been made to state if this is the case in all affected animals, but animals treated on this hypothesis did remarkably well. The disease is not by any means incurable, and although many horses that are allowed to weather the storm unassisted are left in a comparatively useless condition, there are many which have had the advantage of intelligent treatment working now as well as they ever did.

The doctor says the disease is abating. He looks upon it as one incidental to high altitudes and mountainous regions, as inquiries made of eastern veterinarians failed to bring from them a knowledge of its existence there.—*Nat. Live Stock Jou.*

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